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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/644,523

08/18/2003

Chien-Wei Li

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5963

7590 02/07/2007
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EXAMINER

MILLER, DANIEL H

ART UNIT

PAPER NUMBER

1775

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/644,523

Applicant(s)

LI ET AL.

Examiner

Daniel Miller

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1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22, 24-27, 29-41 and 43-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-15, 19, 36, 37, 41 and 43-48 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 11, 12, 16-18, 20-22, 24, 27, 29, 30, 33-35 and 38 is/are rejected.
- 7) ☒ Claim(s) 3-10, 25, 26, 31, 32, 39 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 38 is rejected under 35 U.S.C. 102(b) as being anticipated by Chittipeddi (US 6,294,807).
3. Chittipeddi teaches a silicon based substrate with the forming of a silicon nitride layer and then the forming of a Tantalum Oxide layer over top of the silicon nitride layer (abstract).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,2,11,12,16-18,20-22,24,27,29,30, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 6,733,908) in view of Stowell (US 6,207,295).
6. Lee teaches a Si-based substrate with a multi-layered thermal barrier coating (abstract), but is silent as to applicants claimed coating.

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7. Stowell teaches a turbine blade with a thermal barrier coating comprising alternating layers of SiO₂ and Ta₂O₅ (claims 1-3 ref. and figures). The multilayer coating comprises the same material claimed by applicant in defining applicant's claimed isolation and oxygen barrier layers. The layered system of Stowell can comprise many successive layers of Silica and tantalum oxide (see figure 1), meeting claim requirements for second and third layers of isolation or oxygen barrier layers.
8. The multilayered coating diffuses oxygen and prevents the formation of oxides (column 3 line 15-25).
9. It would be obvious to one of ordinary skill in the art at the time of the invention to apply the same coating to the Si-based substrate of Lee in order to diffuse oxygen and prevent the formation of oxides which corrode the substrate. The tantalum oxide layer is deposited using CVD (column 4 line 49-60).
10. Regarding claim 29-30, the barrier layer, including (SiO₂) layers, would be expected to inherently prevent diffusion of oxygen as claimed since it is substantially the same material taught by applicant.
11. Regarding claims 33-35, the tantalum oxide layer is deposited using CVD (column 4 line 49-60; column 5 line 47-55).

Allowable Subject Matter

12. Claims 13-15, 19, 36, 37, 41 and 43-48 allowed.

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13. Claims 3-10,25,26,31,32,39 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

14. Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Miller whose telephone number is (571)272-1534. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571)272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Daniel Miller



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